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NEW HAMPSHIRE COLLEGE

AGRICULTURAL EXPERIMENT STATION

INSPECTION OF FERTILIZERS

IN 1906

In Coöperation with the State Board of Agriculture

NEW HAMPSHIRE COLLEGE

OF

AGRICULTURE AND THE MECHANIC ARTS

DURHAM

TRADE VALUES OF FERTILIZING INGREDIENTS IN RAW MATERIALS AND CHEMICALS, 1906.

	Cents per pound
Nitrogen in ammonia salts	17.5
Nitrogen in nitrates	16.5
Nitrogen in dry and fine ground fish, meat and blood, and in high grade mixed fertilizers	18.5
Nitrogen in fine ground bone and tankage	18.
Nitrogen in coarse bone and tankage	13.
Phosphoric acid soluble in water	4.5
Phosphoric acid soluble in ammonio citrate (reverted)	4.
Phosphoric acid in fine ground bone, fish and tankage	4.
Phosphoric acid in coarse bone and tankage	3.
Phosphoric acid in cottonseed meal, castor-pomace and wood ashes	4.
Phosphoric acid insoluble in mixed fertilizers	2.
Potash as sulphate free from chlorides and in wood ashes	5.
Potash as muriate	4.25

For the coming year, 1907, there will be an increase in the price of nitrogen in nitrates to not less than 18 cents per pound.

COMMERCIAL FERTILIZERS IN 1906.

BY FRED W. MORSE.

The fertilizer inspection for the past year resulted in the analysis of 104 brands of mixed fertilizers and 10 lots of chemicals. There were more discrepancies than usual between the analyses and the guaranties, and these deficits were scattered among nearly all the companies represented. In a large majority of cases the deficits were in but one constituent and were counterbalanced by an excess of some other, leaving the total value unchanged.

The high prices of nitrogenous chemicals, animal matter, sulphate of ammonia and nitrate of soda make the nitrogen supply the foremost problem for farmers in the fertilization of crops. There is little if any chance of these materials becoming cheaper. Animal nitrogen is directly dependent on soil nitrogen, hence cannot be increased beyond the natural soil supply. Nitrate of soda exists in a world-old deposit, which is being steadily drawn upon, with no evidence of renewal. Sulphate of ammonia can be recovered from coal-gas in proportion to the manufacture of the latter, but its cost will be governed by the scarcity of the other materials.

Two phases of the problem of nitrogen supply are wholly in the hands of the farmers, viz., the lessening of nitrogen loss from manure piles and bare fields, and the development of nitrogen compounds from the atmospheric nitrogen by bacteria.

The supplying of phosphoric acid and potash is secondary to the nitrogen supply, because these constituents are as yet considerably less expensive in proportion to the demand

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An important factor, which as yet is an unknown quantity, is the amount of these materials which a soil can supply annually without deterioration, since in the majority of soils there is an abundance of these compounds in an insoluble condition.

In some sections of our state it has become the habit to regard the soil as worn out, but it would be more accurate to consider it temporarily exhausted and fully capable of regaining its original strength. The most convenient remedy for beginning its recovery is a good commercial fertilizer, which should be accompanied by good tillage and an increase in the humus-content.

COMPOSITION OF COMMERCIAL FERTILIZERS SAMPLED AND ANALYZED IN 1906.

MANUFACTURER AND BRAND.	Nitrogen.				Phosphoric Acid.							Potash.	
			Total.				Available.			Total.			
	Inorganic.	Organic.	Found.	Guaranteed.	Soluble.	Reverted.	Found.	Guaranteed.	Insoluble.	Found.	Guaranteed.	Found	Guaranteed.
Abbott & Martin.													
Abbott & Martin, Potato and Tobacco Special	.....	1.39	1.39	1.65	1.56	6.07	7.63	6.0	3.72	11.35	10.0	4.01	4.0
American Agricultural Chemical Co.													
Bradley's Complete Manure for Potatoes and Vegetables	2.38	1.87	4 25	3.30	3.60	3 25	6.85	8.00	2.80	9.65	9.00	7 04	7.00
Bradley's Complete Manure with 10 per cent. potash	.69	2.44	3.13	3 30	3.14	3.64	6.78	6.60	3.52	10 30	7.00	8.14	10.00
Bradley's Complete Manure for top-dressing Grass and Grain	4.75	.....	4.75	4 95	.82	4.41	5.23	5 00	2.12	7.35	6.00	5.97	2 50
Bradley's Corn Phosphate	.72	1.29	2.01	2.06	3 80	3.60	7.40	8.00	3.60	11.00	10.00	2.24	1.50
Bradley's Eclipse Phosphate	.....	1.49	1 49	1.03	3.82	3.84	7.66	8.00	3.04	10.70	10.00	2.31	2.00
Bradley's Potato Fertilizer	.40	1.96	2 36	2.06	4.08	4 35	8.43	8 00	2.72	11.15	10.00	3.41	3.00
Bradley's Potato Manure	.59	2.12	2.71	2.50	2.48	3.44	5.92	6.00	2.48	8.40	8 00	5.09	5 0
Bradley's Seeding Down Manure	.46	2.18	2 64	2 50	4.49	3 63	8.12	9.0	4.78	13.00	11.0	2.56	2.0
Bradley's XL. Superphosphate of Lime	.56	1.87	2.43	2.50	5.14	4.74	9 88	9.00	2.92	12.70	11.0	2.38	2.0
Clark's Cove Potato Fertilizer	.48	1.58	2.06	2.06	5 28	3 53	8.81	8.00	2.84	11.65	10 00	3.19	3.0
Clark's Cove King Philip Alkaline Guano for all crops	.....	1.22	1.22	1.03	4.81	3 67	8.51	8.0	2.54	11.05	.....	2.29	2.0
Clark's Cove Bay State Fertilizer G. G	.48	1.42	1.90	2.03	4.36	3.40	7.76	8.00	3.64	11.40	10.	2 11	1.50
Cleveland Fertilizer for all crops	.....	1.33	1.33	1.03	3.12	4.68	7.80	8.0	3.60	11.40	10.0	2.02	2.0
Cleveland Potato Phosphate	.33	1.46	1.79	2.06	5.27	2.88	8.15	8.0	2.80	10.95	10.0	3.06	3.0
Cleveland's Superphosphate	.30	1 89	2.19	2.06	3.84	3.82	7.66	8.0	3 44	11.10	10.0	1.79	1.5
Complete Manure with 10 per cent. Potash	.59	2.89	3.48	3.30	2.86	3.22	6.08	6.0	3.72	9.80	7.0	10.06	10.0
Crocker's Ammoniated Corn Phosphate	.43	1.75	2.18	2.06	4.48	4.20	8 68	8.0	2.72	11.40	.....	2.02	1.50
Crocker's Grass and Oats Fertilizer	.....	.....	.....	.....	4.76	4.01	8.77	11.00	2.88	11 65	.....	2.58	2.00
Crocker's New Rival Ammoniated Superphosphate	.....	1.47	1.47	1.03	4.14	4.67	8.81	8.0	1.76	10.57	.....	3.65	2.00
Crocker's Potato Hop and Tobacco	.30	1.72	2 02	2.06	5.28	3.28	8.40	8.0	2.80	11.2	.....	3.95	3.
Crocker's Special Potato Manure	1.06	1.89	2.95	3.29	4 02	3.33	7.35	6 00	1.40	8.75	.....	9.82	10.0
Cumberland Guano for all crops	.....	1.22	1.22	1.03	4 62	3.05	7 67	8.0	2.88	10.55	10.0	2.44	2.0
Cumberland Potato Fertilizer	.29	2.46	2,75	2.06	3.61	3.56	7.17	8.0	2.98	10.15	10.0	3.59	3.0
Cumberland Superphosphate	.37	1.68	2.05	2.06	4.32	4.48	8.80	8.0	3.00	11.80	10.0	1.99	1.50
Darling's Farm Favorite	.57	1.68	1.95	2.06	3.72	3.93	7.65	8.0	2.48	10 13	10.0	2.59	3.0
Darling's General Fertilizer	.....	1.94	1.94	1.25	3.80	3.67	7.47	6.0	1.88	9.35	7.0	3.37	3.0

COMPOSITION OF COMMERCIAL FERTILIZERS SAMPLED AND ANALYZED IN 1906.—*Continued.*

MANUFACTURER AND BRAND.	Nitrogen.				Phosphoric Acid.							Potash.	
			Total.				Available.			Total.			
	Inorganic.	Organic.	Found.	Guaranteed.	Soluble.	Reverted.	Found.	Guaranteed.	Insoluble.	Found.	Guaranteed.	Found.	Guaranteed.
Darling's Potato Manure	.40	2.28	2.68	2.50	3.14	3.24	6.38	6.0	2.44	8.82	8.0	5.18	5.0
Great Eastern Grass and Oats Fertilizer	.....	.....	.....	.....	4.90	6.12	11 02	11.0	2.28	13.30	.....	2.23	2.0
Great Eastern Northern Corn Special	.56	1.68	2.24	2.06	5.61	3.74	9.35	8.0	2.96	12.31	.....	3.20	3 0
Great Eastern Potato Manure	.52	1.64	2.16	2.06	4.44	3 47	7.91	8.0	2.04	9 95	.....	4 07	3.0
High Grade Fertilizer with 10 per cent. Potash	.58	2.41	3.02	2.40	2.26	4.06	6.32	6.0	4.28	10.6	7.00	9 30	10.0
High Grade Sulphate of Potash	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	47.0	48.0
Muriate of Potash	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	51.2	50 0
Nitrate of Soda	.....	.....	15.16	15.8	.....	.....	.....	.....	.....	.....	.....	.....	.....
Pacific Potato Special	.28	1.99	2.27	2.06	3.84	3.53	7.37	8.0	3.08	10.45	10 00	3.21	3.0
Packer's Union Animal Corn Fertilizer	.36	2.11	2.47	2.47	3.72	5.32	9.04	9.00	2.96	12.00	.....	1.93	2.0
Packer's Union Potato Manure	.31	1.74	2.05	2.06	5.12	3.21	8.33	8.0	2.72	11 05	....	6.01	6.0
Packer's Union Universal Fertilizer	.....	1.10	1.10	0.82	3.46	4.15	7.61	8.0	3.04	10.65	.....	3.85	4.0
Packer's Union Wheat, Oats and Clover Fertilizer	.....	.....	.....	.....	5.98	4 41	10.39	11.0	2.16	12.55	.....	2.29	2.0
Quinnipiac Climax Phosphate for all crops	.....	1.38	1.38	1.03	4.15	3 70	7.85	8.0	3.20	11.05	10.	2.62	2.
Quinnipiac Corn Manure	.25	1.91	2.16	2.06	3.81	4.05	7.89	8 0	3.76	11.65	10.0	1.71	1.5
Quinnipiac Potato Phosphate	.27	1.61	1.88	2.06	5.68	2.45	8.13	8 0	2 92	11.05	10.0	3 05	3.0
Read's Farmer's Friend	.31	1.63	1.94	2.06	5.34	2 94	8.28	8.0	2.32	10.60	10.0	3.05	3.0
Read's Potato Manure	.23	3.15	3.38	2.40	3.16	3.93	6.09	6.0	1.96	8.05	7 0	9.46	10.0
Read's Practical Potato Special	.....	1.32	1.32	.82	2.71	3.94	6.65	4.0	2.60	9.25	5 0	7.53	8.0
Read's Standard Superphosphate	.....	1.08	1.08	82	3.68	4.94	8.62	8.00	2 88	11.5	10.0	4.07	4.0
Read's Vegetable and Vine Fertilizer	.38	1.67	2.05	2.06	3.40	4.89	8.29	8.0	3.36	11.65	10.0	3.69	6.0
Soluble Pacific Guano	.13	2.03	2.16	2.06	5.72	3.05	8.77	8.0	1.68	10.45	10.0	1 86	1.50
Williams & Clark Americus Corn Phosphate	.46	2.21	2.67	2.06	4.80	3.68	8.48	8.0	3.24	11.72	10 0	2.34	1 50
Williams & Clark Americus Potato Manure	.20	1.50	1.70	2.06	4.60	3.88	8.48	8.0	3.12	11.60	10.0	3.55	3.0
BOWKER FERTILIZER CO.													
Bowker's Corn Phosphate	.26	1.47	1.73	1.65	5.24	4.04	9.28	8.00	1.72	11.00	9.00	2.34	2.00
Bowker's Farm and Garden Phosphate	.27	1.47	1.74	1.65	4.86	3.45	8 31	8.0	2.64	10.95	9 0	2.14	2 00
Bowker's Hill and Drill Phosphate	.53	1.79	2.32	2.47	4.06	4.68	8.74	9.0	2.96	11.70	10 0	2.05	2.00
Bowker's Potash Bone	.....	1.25	1.25	0.82	2.98	2.86	5.84	6.0	1.96	7 80	7.0	2.48	2.0

Bowker's Potato and Vegetable Fertilizer	.49	1.97	2.46	2 47	4.50	3 02	7.52	8.0	3.78	11.30	10.0	2.45	4.0
Bowker's Potato and Vegetable Phosphate	.20	1.60	1.80	1.65	5.22	3 08	8.30	9.0	1.92	10.22	10.0	2.31	2 0
Bowker's Sure Crop Phosphate	.....	1.09	1 09	.82	5.52	2.84	8.36	9.0	2 24	10.60	10.0	2 91	2.0
Bowker's Superphosphate with Potash	.....	.....	.....	.....	5.76	4.49	10.25	10.0	1.40	11 65	11.0	1.06	1.0
Stockbridge Special Manure for Corn, etc	.40	2.89	3.29	*3 29	4.25	4.16	8.41	10.0	3.24	11.65	11.0	7.56	7.0
Stockbridge Special Manure for Potatoes, etc	.52	2.70	3.22	3.29	4 08	2.56	6.44	6.0	3.76	10.20	7.0	8.62	10.0
Stockbridge Special Manure for top-dressing, etc	1.57	3.08	4.65	4.94	3.61	1.77	5.41	4.0	1.64	7.05	6.0	6 88	6.0
Stockbridge Manure for Seeding Down	.48	2.13	2.61	2.47	4.31	3.31	7.65	6.0	1.40	8.65	9.0	8.11	10.0
THE COE-MORTIMER CO.													
E. F. Coe's XXV Ammoniated Bone Phosphate	.20	.81	1.01	.80	5.70	2.96	8.66	8.5	2.54	11.2	10.0	2.13	1.5
E. F. Coe's Celebrated Special Potato Fertilizer	.32	1.52	1.84	1.65	6.20	2 16	8.36	8.0	2.44	10.8	10.0	3.89	4.0
E. Frank Coe's Columbia Corn Fertilizer	.....	1.59	1.59	1.23	4 80	3.80	8.60	8.50	2.40	11.0	10.50	2.56	2.50
E. Frank Coe's Columbian Potato Fertilizer	.....	1.64	1.64	1.20	5.44	3.68	9.12	8.50	3.28	12.40	10 00	3 61	2.50
E. F. Coe's Grass and Grain Special	.....	1.03	1.03	.....	5.93	2.93	8.86	8 5	1.84	10.7	.....	1.55	1.5
E. F. Coe's High Grade Potato Fertilizer	.40	1.83	2.23	2.40	5 61	2.51	8.12	8 0	2.68	10.8	9 0	5.30	6.0
E. Frank Coe's New England Corn Fertilizer	.....	1.24	1.24	.80	5.15	3.04	8 19	7.50	2.88	11.07	9.0	3.91	3.0
E. F. Coe's New England Potato Fertilizer	.....	1.49	1.49	.80	6.44	2.82	9.26	7.5	2.04	11.30	9.0	3.16	3.0
LISTER AGRICULTURAL CHEMICAL WORKS.													
Lister's Animal Bone and Potash	.....	.....	.....	.....	5.34	4.63	9.97	11.0	3.08	3.05	12.0	2 02	2.0
Lister's Oneida Special	.....	1.78	1.78	.83	4.08	4.10	8.18	7.0	3.12	11.3	8	2.26	1.0
Lister's Special Corn Fertilizer	.30	1.67	1.97	1.65	5.61	3.18	8.79	8.0	2.36	11.15	9.0	3.11	3.0
Lister's Special Potato Fertilizer	.34	1.58	1.92	1.65	4.20	4.27	8.47	8.0	2.48	10.95	9.0	3 09	3.0
Lister's Success	.....	1.17	1.17	1.24	4.28	4.11	8 39	9.0	2.76	11.15	11.	2.30	2.0
NEW ENGLAND FERTILIZER CO.													
New England Corn Phosphate	.15	1.45	1.60	1.64	3.86	3.02	6 88	8.00	2.12	9.00	9.00	3.36	3.0
New England Potato Fertilizer	.16	1.53	1.69	1.64	4.64	4.04	8 68	7.0	2.72	11.4	8.0	4.02	4.0
New England Superphosphate	.14	2.37	2.51	2.46	4.16	4.25	8.41	9.0	2.04	10.45	10.0	4.34	4.0
OHIO FARMERS' FERTILIZER CO.													
General Crop Fish Guano	.....	.52	.52	.82	.62	7.23	7.85	7.0	5.00	12.85	9 0	2.59	1.0
Potato and Tobacco Special	.....	1.04	1.04	1.64	.93	6.11	7.04	8.0	4.06	11.1	10.00	3.94	4.0
PARMENTER & POLSEY FERTILIZER CO.													
"A. A." Brand	.57	2.45	3.02	4.11	3.80	3.05	6.85	7 0	3.00	9.85	8.0	7.38	8.0
Muriate of Potash	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	62.96	50.0
Nitrate of Soda	.....	.....	15.60	15.2	.....	.....	.....	.....	.....	.....	.....	.....	.....
"P. & P." Potato Fertilizer	.13	1.61	1.74	1.64	3.88	2 31	6.19	6.0	3.96	10 15	7.0	5.50	6.0
Plymouth Rock Brand	.25	2.12	2.37	2.46	4.42	3 60	8.02	8.0	3 08	11.1	9 0	4.35	4.0
Special Potato Fertilizer	61	2.66	3.27	3.29	3.92	4 30	8.22	8.0	3.08	11.3	9.0	6.42	7.0
Star Brand	.17	1.37	1.54	1.65	4.08	3.40	7.48	7.0	3.32	10.8	8.0	2.38	2.5

COMPOSITION OF COMMERCIAL FERTILIZERS SAMPLED AND ANALYZED IN 1906.—*Concluded.*

MANUFACTURER AND BRAND.	Nitrogen.				Phosphoric Acid.							Potash.	
			Total.				Available.			Total.			
	Inorganic.	Organic.	Found.	Guaranteed.	Soluble.	Reverted.	Found.	Guaranteed.	Insoluble.	Found.	Guaranteed.	Found.	Guaranteed.
Russia Cement Co.													
Essex A. 1 Superphosphate	.....	1.07	1 07	1.00	1.00	6.46	7 46	7.00	4.24	11 70	9.0	2.37	2 0
Essex Complete Manure for Corn, Grain and Grass	.35	2.57	2.92	3.3	4.76	3.91	8 67	7.00	2 68	10.75	9.0	9.93	9 5
Essex Complete Manure for Potatoes, Roots and Vegetables	.44	3.46	3.90	3.7	3.27	3.92	7.19	7.00	4.96	12.15	9.0	10.42	8.5
Essex Corn Fertilizer	.37	1.53	1 90	2.00	4.96	3 89	8 85	8.0	2 52	11.37	10.5	3 09	3.0
Essex XXX Fish and Potash	.67	1.69	2.36	2.1	2.59	5.87	8.46	9.0	4.44	12.90	12 0	3.25	2.25
Essex Market Garden and Potato Manure	.52	1.91	2.43	2.0	3 82	4.74	8 56	8.0	3 64	12.20	10.0	4.25	5.0
J. W. Sanborn.													
Hill and Drill	.43	2.14	2.57	2.8	3.00	4.41	7.41	7.0	6 84	14.25	13.2	3.31	3.
Potato Special	.96	2.89	3.85	3.8	2 29	5.07	7.36	6.08	3 44	10.8	7.86	7.76	7 2
Sanborn's Formula for Grass	4.80	.....	4.80	5.2	2.73	.85	3.58	3.50	4.12	7.70	7.10	7.42	6.5
Swift's Lowell Fertilizer Co.													
High Grade Sulphate of Potash	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	47.28	1.8
Muriate of Potash	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	62.9	5.0
Nitrate of Soda	.....	.....	16.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Swift's Lowell Animal Brand	.13	2.36	2.49	2.46	5.76	3.44	9.20	9.00	3.20	12 4	10.	1.72	1.0
Swift's Lowell Bone Fertilizer	.13	1.50	1 63	1.64	5.20	3.45	8.65	8.0	3 00	11.65	9.0	3.25	3.0
Swift's Lowell Cereal Fertilizer	.....	1.22	1.22	.82	3.52	2.87	6.39	7.0	2.86	8.75	8.0	1.37	1.0
Swift's Lowell Dissolved Bone and Potash	.....	1.77	1.77	1.64	5 00	3 45	8.45	9.0	3.90	12.35	10 0	2 28	2.0
Swift's Lowell Empress Brand	.....	1.54	1.54	1.23	4.96	2.77	7.73	7.0	2.92	10.65	8.0	2.60	2.0
Swift's Lowell Market Garden Manure	1.44	2.60	4.04	.....	3.48	4.17	7.65	.....	3.50	11.15	.....	6 42	.....
Swift's Lowell Potato Manure	.15	1.51	1.66	1.64	3.68	3.82	7.50	7.0	3.00	10.5	8.0	3.86	4.0
Swift's Lowell Potato Phosphate	.25	2.42	2.67	2.46	4.60	4.10	8.70	8.0	2 92	11.62	3 0	6.72	6 0
Swift's Lowell Sterling Phosphate	.....	.85	.85	.82	4.91	3.34	8.25	8 0	2 20	10.45	9 0	5.35	4 0
Swift's Superior Fertilizer	.52	3.62	4.14	3.69	4.90	2.49	7.39	7.0	1.96	9.35	8.0	8.67	10.0
Whitman & Pratt Rendering Co.													
Pure Ground Bone	.....	.....	4.11	2 47	.....	.....	.....	.....	.....	23.5	25.0	.....	.....

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